Upscaling Citizen Science

Additional Info: Quality Criteria Citizen Science

This document provides additional information on some of the quality criteria for citizen science projects on Österreich forscht (Version 1.2, https://zenodo.org/records/14845396). It should help you understand what is required in your response. The enumeration (e.g. [K1.1]) shows which questions each information relates to.

To submit a proposal, please answer the questions by filling out the provided form, “Upscaling_CALL FOR PROPOSALS_Projectname”, which can be downloaded from the project website (https://boku.ac.at/missionsoilwater).

Exclusion criteria [C1]

[C1.1]

[C1.2] *****_This question primarily concerns traditional opinion polls. Opinion polls can also be conducted in citizen science projects, but they should not be the only form of participation for participants._

[C1.3] _*If only data on or about the participants are collected, meaning the participants are only the research objects, this would not qualify as citizen science._

[C1.4] _*This refers, for example, to the provision of computing power from computers, smartphones, etc., or the one-off installation of a sensor without any further tasks, where individuals simply make their property available for research purposes, or similar activities. This type of project does not involve sufficient active participation to fulfill the quality criteria._

Open questions regarding the project [C2]

[C2.1] _*A project must have either a research question, a hypothesis or an objective that it seeks to achieve. In most cases, this depends on the scientific background of the project, but it can also vary within a single discipline (for example, a biodiversity monitoring project will often not have a research question, but rather an objective, namely, to record biodiversity in a specific area)._

[C2.2]

[C2.3]

[C2.4] **Please describe the benefits that both researchers AND citizen scientists gain from the project. These benefits can be different between researchers and citizen scientists and should be concrete and specific.*

[C2.5] **Please describe why you think that the project could not be achieved without the active involvement of citizen scientists.*

[C2.6] **What does 'publication of results' mean?*

'Publication of results' refers to active involvement in the drafting of the publication. The publication may be a report, a scientific paper or something similar. For example, sharing results on social media does not count as active involvement in the publication of the results.

[C2.7] **Please describe the objectives and goals of the project in an easy-to-understand language. Please do not forget to specify where or how citizen scientists can familiarize themselves with the objectives and goals before participation.*

[C2.8] *******Please describe the roles and associated responsibilities of* ***BOTH*** *the research team and the citizen scientists in the project. Please also indicate where or how citizen scientists can familiarize themselves with these role descriptions before participation.*

[C2.9] **'Publicly accessible' means that the data and metadata can be downloaded free of charge by anyone at any time from a public repository. The repository may be hosted by an institution (e.g. a university) or be available on the project website.*

"Data and metadata" refers to the data collected or generated in the project (e.g. distribution of organisms, digitized transcriptions and their interpretations, dangerous road junctions), as well as a description of this data (e.g. where was this data collected, who generated the data, in what context was the data collected/generated). This does not refer to a summary presentation of the data in graphs or maps. The data must be made available in such a way that it can be used for further work and, for example, further analyses can be carried out.

[C2.10+C2.11] **"Results" are publications in most cases. However, some projects may also have other or additional results (e.g. reports, recommendations, databases). Please describe your intended results and how they are going to be publicly available.* ***Open Access*** *refers to free and unrestricted access to scientific publications on the internet.* ***Discoverability*** *means that results can be easily found in recognised journals, open-access repositories or scientific databases, often supported by the use of Digital Object Identifiers (DOIs).* ***Reusability*** *is enabled by detailed methodological descriptions, the provision of raw data and analysis scripts, and clear licensing terms for reuse.* ***Traceability*** *requires full documentation of the research process, including the disclosure of assumptions and limitations, as well as the provision of supplementary materials.* ***Transparency*** *is achieved through the disclosure of funding sources, potential conflicts of interest, and a clear presentation*

of the research question and hypotheses. Furthermore, full reporting, including of negative or unexpected results, is an important aspect of transparency.

These principles enable other researchers to verify, reproduce and utilise the results for further research. Implementing these principles not only improves the quality of individual research projects, but also enhances the efficiency and effectiveness of the entire scientific ecosystem.

Further information can be found at: https://doaj.org/ or https://sparcopen.org/our-work/howopenisit/ .

[C2.12] **Please specify which groups of people you wish to target with the project and how you are going to reach out to them.*

[C2.13]

[C2.14] **Please specify the channels you use to provide your citizen scientists with feedback on the progress of the project and the results. These could include newsletters, blogs, events or similar.*

[C2.15] ** Please note that this question concerns external communication, not communication with your citizen scientists.*

[C2.16] **What does Criterion 16 mean, and how should I answer the corresponding question?*

A conflict of interest exists if the objective research in the citizen science project is influenced by other interests (company objectives, association objectives, personal interests, etc.). Should any potential conflicts of interest exist, these must be communicated openly and transparently in such a way that the citizen scientists involved in the project can easily identify and understand them.

[C2.17] **The key methods may include technologies, software, tools, forms of integration, data collection methods, etc.*

[C2.18] **For understandable reasons, not every project can involve everyone. Nor is this necessary to meet this criterion. If certain methods cannot be designed to be inclusive, the reasons must be explained. Inclusive methods and content appeal to everyone, and everyone feels included. Inclusive methods and content are understandable to everyone. Everyone can participate and have a say.*

[C2.19] **Research data refers to digital or analogue data that is generated, used or produced as a result of scientific activities. It encompasses a wide range of information, including measurement data and laboratory results, audiovisual information, texts and survey data, observational data, experimental results and much more.*

It is important to note that the definition of research data may vary depending on the discipline and research project. Research data does not generally refer to personal

data, the handling of which is already regulated by legal provisions (e.g. the General Data Protection Regulation).

[C2.20] **There is no single, universal way to describe meaningful recognition, as it is always specific to the project.*

[C2.21] **The following are questions you need to ask yourself in relation to a data management plan:*

- *Who will be responsible for data management within the project?*
- *What data and volumes of data will be collected or produced within the project, and how?*
- *How will the data be documented?*
- *What quality assurance methods will be used when storing and documenting the data?*
- *How will the data be stored and backed up within the project?*
- *How is access to the data regulated?*
- *What legal aspects must be considered regarding data access (e.g. usage licences such as the Creative Commons Licence)?*
- *Should the data be archived long-term? If so, in which system should the data be retrievable and accessible in the long term (e.g. a repository)?*
- *What ethical considerations must be taken into account regarding data storage and access?*

Further information on creating data management plans can be found, among other places, here:

https://boku.ac.at/fos/themen/forschungsdatenmanagement-fdm/richtlinien-von-foerderorganisationen

https://datamanagement.univie.ac.at/fdm-archiv/datenmanagementplaene/